CLAIMS

1. A plant for producing oxygen and/or nitrogen and/or argon by air distillation, comprising: N(N>1) cold boxes (2), each of which comprises, on the one hand, a heat exchange line (5) for cooling the air to be distilled and, on the other hand, an air distillation apparatus (4) that produces oxygen and/or nitrogen and/or argon; and means (3) for treating the air that feeds the air distillation apparatuses and optionally means for treating a fluid coming from the air distillation apparatuses, these air treatment means or the fluid treatment means comprising several items of equipment mounted in parallel and networked with their inlets and/or their outlets connected to a common header (8, 10, -14, -17, -18, 22, -24, 39, 40, 44, 45, 46, 47, 122, 123, 125) that collects or redistributes all of the air or of the fluid from the corresponding treatment step and, if the fluid treatment means have several items of equipment mounted in parallel and networked, these treatment means being turbines and/or pumps and/or heaters and/or cooling towers.

2. The plant as claimed in claim 1, wherein the air treatment means comprising several items of equipment mounted in parallel and networked are the first atmospheric air compression means (6) and/or the second air precooling means (9) and/or third means (11) for purifying the precooled air by adsorption and/or expansion turbines (16) and/or boosters (38, 42).

3. The plant as claimed in claim 2, wherein the first (6), second (9) and third (11) treatment means comprise N1, N2, N3 items of equipment respectively and wherein at least one of the numbers N1, N2, N3 is different from N, the corresponding apparatuses being mounted in parallel with their outlets connected to a common header (8, 10, 14, 17, 18).

4. The plant as claimed in claim 3, wherein N2≥2 and wherein the second means (9) comprise at least one common coolant production device (21).

5. The plant as claimed in claim 4, wherein said common device(s) is (are) a water/nitrogen cooling tower that includes an inlet header (22) connected to a waste nitrogen outlet of the N cold boxes (2) and to an outlet header (122).

6. The plant as claimed in any one of claims 3 to 5, wherein N3≥2 and wherein the third means (11) comprise at least one common heater (23) for an adsorbent regeneration gas.

7. The plant as claimed in claim 6, wherein the common heater(s) includes (include) an inlet header (24) connected to a waste nitrogen outlet of the N cold boxes (2) and to an outlet header (125).

8. The plant as claimed in any one of claims 1 to 7, wherein the treatment means (3) furthermore comprise N4 air boosters mounted in parallel with their inlets and their outlets connected to common headers (34, 35, 39, 40, 44, 45), N4 optionally being different from N.

9. The plant as claimed in claim 8, wherein N4 = N1, each main air compressor (6)/air booster (42) pair having a common drive member.

10. The plant as claimed in claim 8 or 9, wherein each cold box (2) produces liquid oxygen and/or liquid nitrogen and wherein the plant comprises N6 liquid oxygen and/or liquid nitrogen and/or liquid argon pumps (43) mounted in parallel between an inlet header (46) and a common outlet header (47) that are connected to the N air distillation apparatuses (4) and to the N heat exchange lines (5) respectively, N6 optionally being different from N.

11. The plant as claimed in any one of claims 1 to 9, wherein the treatment means (3) furthermore include N5 turbines (16) mounted in parallel between common inlet headers (17) and common outlet headers (18), N5 optionally being different from N.

12. The plant as claimed in any one of claims 1 to 11, wherein at least some of said items of equipment in parallel and networked are N+1 in number, each of these items of equipment having the capacity to feed one of the N air distillation apparatuses (4) or the capacity to treat fluid for one of the N air distillation apparatuses (4).

13. The plant as claimed in any one of claims 1 to 12, wherein at least some of said items of equipment in parallel and networked are N+n1 in number (n1>1), each of these items of equipment having a lesser capacity than that needed to feed a distillation apparatus (4) or to treat fluid of a distillation apparatus(4).

14. The plant as claimed in any one of claims 1 to 13, wherein at least some of said items of equipment in parallel and networked are N-n2 in number (n2>1), each of these items of equipment having a greater capacity than that needed to feed a distillation apparatus (4) or to treat fluid of a distillation apparatus (4).